



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/784,944

02/25/2004

Zhitai Sun

1341.1190

9464

21171 7590 04/22/2009  
STAAS & HALSEY LLP  
SUITE 700  
1201 NEW YORK AVENUE, N.W.  
WASHINGTON, DC 20005

EXAMINER

ARCOS, CAROLINE H

ART UNIT

PAPER NUMBER

2195

MAIL DATE

DELIVERY MODE

04/22/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/784,944             | SUN ET AL.          |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | CAROLINE ARCOS         | 2195                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☒ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

Claims 1-4, and 6-13 are pending for examination.

#### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/05/2009 has been entered.

#### ***Claim Rejections - 35 USC § 101***

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claim 9 is rejected under 35 U.S.C. 101 because the claims are directed to non-statutory subject matter.

3. As per claim 9, the claimed invention is directed to apparatus claim, but appearing to be comprised of software alone without claiming the associated computer hardware required for execution. For example claim 9 recites a PCB, a determining unit and a changing unit, which are all software modules/functions. Software alone is directed to a non-statutory subject matter.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-4 and 6-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- i. The claim language in the following claims is not clearly understood:

- i. As per claim 1, it is unclear the relation between non idle process determination and the process identifier in the PCB. Line 10, it is unclear how changing a priority of the task (operating system) higher than a primary priority of the task (operating system) is done (i.e. is changing the priority of the operating system in reference to another or itself?)
- ii. As per claim 3, it is unclear how the changing of the operating system priority to a lower priority is done. (i.e. is it changing the operating system priority is reference/ compared to another operating system?)
- iii. As per claim 4, line 4, it is uncertain whether “determining whether a non idle process is executable under the control of the operating system” is done for the second time. It is unclear whether “ a non- idle process” is the same as “ a non idle process” referred to in claim 1(i.e. if it the same non-idle process referred to in claim 1, it should be referred to as said idle process). Line 7, it is not clearly understood what are the criteria for determining that an interruption request has been made to the operating system (i.e. an interrupt flag?)

- iv. As per claim 8, it is unclear whether “the process” referred to in line 5 is the same as “ processes” referred to in claim 1 (i.e. if it is the same processes, it should be addresses in plural).
- v. As per claim 9, it is unclear the relation between non idle process determination and the process identifier in the PCB. Line 10, it is unclear how changing a priority of the task (operating system) higher than a primary priority of the task (operating system) is done (i.e. is changing the priority of the operating system in reference to another or itself?)
- vi. As per claim 10, it has the same deficiency as claim 9.
- vii. As per claim 12, it is unclear how raising a priority of the task (operating system) higher than a primary priority (operating system) is done (i.e. is changing the priority of the operating system in reference to another or itself?)
- viii. As per claim 13, it is unclear how changing a priority of the task (operating system) higher than a primary priority of the task (operating system) is done (i.e. is changing the priority of the operating system in reference to another or itself?)

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-2, 4, 6-7, 9-10 and 12-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Saito et al. (US 2005/0149933 A1).

8. As per claim 1, Saito teaches the invention substantially as claimed including a computer-readable recording medium that stores a task control computer program including computer executable instructions which when executed by a computer, cause the computer to execute an operating system as a task by performing:

determining whether a non-idle process is included in processes to be executed under control of the operating system that process is included in processes to be executed under control of the operating system based on a process identifier stored in a process control block (PCB) of processes to be executed under control of the operating system, wherein the non-idle process is a process waiting for execution under control of the operating system, other than an idle process executed when the operating system proceeds to an idle state (par. [0070]; par. [0071]; par. [0094]; par. [0095]; par. [0096]; par. [0098]; Fig. 5, 114);

changing a priority of the task to a higher priority higher than a primary priority of the task, to execute the operating system under control of which the non-idle process is executed when it is determined at the determining that the executable processes to be executed under control of the operating system include the non-idle process (Abs., lines 2-3; abs., lines 12-15; par. [0020]; par. [0061]; par. [0063]; wherein it is understood that switching to the operating system with the highest priority process is changing the priority of the operating system that was switched to from secondary priority to a first priority in order to run the processes under its

control).

9. As per claim 2, Saito teaches a system call that executes the determining and the changing (Fig. 7, 184; par. [0141], lines 1-6).

10. As per claim 4, Saito teaches the determining comprises:

Determining whether a non-idle process is executable under the control of the operating system (par. [0095]; par. [0096]; par. [0098]);

determining whether a schedule request for one of the processes to be executed under control of the operating system has been made to the operating system (Fig. 1; fig. 9; Par. [0070]); and

determining whether an interruption request has been made to the operating system (fig. 12, elements 241,242).

11. As per claim 6, Saito teach the determining whether the schedule request has been made to the operating system is based on a schedule request flag stored in a process control block of the one of the processes to be executed under control of the operating system (par. [0070]).

12. As per claim 7, Saito teaches that the determining whether an interruption request has been made to the operating system is based on an interruption request flag set when an interruption to the operating system is required (fig. 3, 141; Fig. 12; Fig. 21,177).

13. As per claim 9, it is the task control apparatus of the medium claim 1. It has similar limitation therefore it is rejected under the same rational.

14. As per claim 10, it is the task control method of the medium claim 1. Therefore, it is rejected under the same rational.

15. As per claim 12, Saito teaches a task control method for causing a computer to execute an operating system as a task, the method comprising;

raising a priority of a-the task upon determining processes to be executed under control of the operating system include a non-idle process to be executed under control of the operating system other than an idle process executed when the operating system proceeds to an idle state and based on an identifier stored in a control block executed by the operating system (Abs., lines 2-3; abs., lines 12-15; par. [0020]; par. [0061]; par. [0063];(par. [0070]; par. [0071]; par. [0094]; par. [0095]; par. [0096]; par. [0098]; Fig. 5, 114; wherein it is well known and understood that switching to the operating system with the highest priority process is changing the priority of the operating system that was switched to from secondary priority to a first priority in order to run the processes under its control).

16. As per claim 13, Saito teaches a method performed by a processor causing a computer to execute an operating system as a task comprising:

Changing a priority of the task to a priority higher than a primary priority to execute the operating system under control of which the non-idle process is executed upon determining that processes to be executed include a non-idle process (Abs., lines 2-3; abs., lines 12-15; par.



Art Unit: 2195

[0020]; par. [0061]; par. [0063];(par. [0070]; par. [0071]; par. [0094]; par. [0095]; par. [0096]; par. [0098]; Fig. 5, 114; wherein it is well known and understood that switching to the operating system with the highest priority process is changing the priority of the operating system that was switched to from secondary priority to a first priority in order to run the processes under its control).

***Claim Rejections - 35 USC § 103***

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 3, 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al. (US 2005/0149933 A1).

19. As per claim 3, Saito teaches changing the priority of the task to the primary lower than the higher priority after the operating system has been executed at the higher priority ( par. [0020]; par. [0061]; par. [0111]; par. [0112]; par. [0113]; par. [0115], lines 5-8).

20. Saito doesn't not explicitly teach the operating system has been executed at the higher priority for a predetermined period of time. However, it would have been obvious from Saito background of invention of allocating time slice for each virtual machine to incorporate this teaching with changing operating system priority to have a fair share of the CPU time (par.

Art Unit: 2195

[0003]).

21. As per claim 8, Saito teaches the primary priority of the task is changed to the higher priority after it is determined at the determining that the non idle process waiting for the execution is included in the process to be executed under control of the operating system (par. [0020]; par. [0061]; par. [0111]; par. [0112]; par. [0113]; par. [0115], lines 5-8).

22. Saito doesn't explicitly teach that a priority change when a predetermined period of time has elapsed. However, it would have been obvious from Saito background of invention of allocating time slice for each virtual machine to incorporate this teaching with changing operating system priority to have a fair share of the CPU time (par. [0003]).

23. As per claim 11, Saito teaches changing the priority of the task to the primary priority lower than the higher priority after the operating system has been executed at the higher priority (par. [0003]; par. [0111]; par. [0112]; par. [0113]; par. [0115], lines 5-8).

24. Saito doesn't explicitly teach operating system execution for a predetermined period of time. However, it would have been obvious from Saito background of invention of allocating time slice for each virtual machine to incorporate this teaching with changing operating system priority to have a fair share of the CPU time (par. [0003]).

***Response to Arguments***

25. Applicant's arguments filed on 02/05/2009 have been fully considered but they are not persuasive.

***Conclusion***

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 6631394 B1 teaches embedded system with interrupt handler for multiple operating systems.

US 6715016 B1 teaches multiple operating system control method.

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAROLINE ARCOS whose telephone number is (571)270-3151. The examiner can normally be reached on Monday-Thursday 7:00 AM to 5:30 PM.

28. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

29. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/VAN H NGUYEN/  
Primary Examiner, Art Unit 2194

/Caroline Arcos/  
Examiner, Art Unit 2195